

# Comparisons of Job Characteristics

**Focus Occupation:** Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

**Associated Occupation:** Geological and Petroleum Technicians (19-4041)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 72

**Focus Occupation:** Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

**Associated Occupation:** Geological and Petroleum Technicians (19-4041)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematics	9.2	14.8	15.3	0	Current knowledge level may be sufficient
Computers and Electronics	8.4	14.4	10.8	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	12.0	20.6	>>	Current knowledge level is likely more than sufficient
Geography	3.9	11.6	10.2	<	Expanded education and/or training may be required
Physics	4.3	11.2	11.4	0	Current knowledge level may be sufficient
Chemistry	4.8	10.7	10.2	0	Current knowledge level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 70

**Focus Occupation:** Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

**Associated Occupation:** Geological and Petroleum Technicians (19-4041)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	9.8	11.5	>	Skill level is likely sufficient
Mathematics	6.2	7.8	13.9	>>	Skill level is likely more than sufficient
Troubleshooting	4.5	6.1	5.2	<	A higher skill level may be required
Equipment Selection	3.3	4.7	5.8	>	Skill level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 93			
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Geological and Petroleum Technicians (19-4041)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Written Comprehension	11.0	13.0	15.7	>	Current ability level is likely sufficient
Oral Comprehension	12.5	12.6	16.3	>>	Current ability level is likely more than sufficient
Oral Expression	12.4	12.3	15.4	>	Current ability level is likely sufficient
Near Vision	11.1	11.1	12.5	>	Current ability level is likely sufficient
Inductive Reasoning	10.2	10.7	14.1	>>	Current ability level is likely more than sufficient
Information Ordering	9.9	10.7	14.4	>>	Current ability level is likely more than sufficient
Written Expression	9.8	10.7	15.1	>>	Current ability level is likely more than sufficient
Deductive Reasoning	10.6	10.4	15.5	>>	Current ability level is likely more than sufficient
Category Flexibility	9.0	10.3	13.8	>>	Current ability level is likely more than sufficient
Flexibility of Closure	7.8	9.9	12.2	>	Current ability level is likely sufficient
Mathematical Reasoning	6.3	8.4	12.8	>>	Current ability level is likely more than sufficient
Number Facility	6.3	8.4	10.1	>	Current ability level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 79
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Geological and Petroleum Technicians (19-4041)		
Work Activities	Exclusivity of Activity	
Adhere to safety procedures	12	
Analyze geological research data	87	
Analyze scientific research data or investigative findings	27	
Analyze technical data, designs, or preliminary specifications	47	
Collect scientific or technical data	30	
Communicate technical information	4	
Compile numerical or statistical data	38	
Conduct standardized qualitative laboratory analyses	62	

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Develop or maintain databases	30
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Follow safe waste disposal procedures	50
Perform safety inspections in construction or resource extraction setting	46
Prepare reports	8
Prepare safety reports	60
Read technical drawings	7
Understand engineering data or reports	48
Use computers to enter, access or retrieve data	3
Use hazardous materials information	35
Use knowledge of materials testing procedures	70
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 88

**Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)**  
**Associated Occupation: Geological and Petroleum Technicians (19-4041)**

Tools and Technologies	Exclusivity
Audio and visual equipment	4
Business function specific software	1
Calculating machines and accessories	3
Computer data input devices	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Forming tools	2
Geophysical and geotechnical instruments	23
Industry specific software	1
Measuring and layout tools	3
Rock and strata measuring equipment	47

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.